Documentation Sheet

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Title	*Estimation of In-band Radar Cross Section (RCS) of Phased Array with Series-Feed Network*
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Abstract

Antenna scattering is a major contributor to the RCS of the target on which the antenna is mounted, especially when the threat frequency falls within the operating band of the antenna. In this report, the RCS of phased array is estimated for series-feed network using Jenn's approximate model. For the estimation of RCS, multiple reflections are neglected. It is assumed that the components of the same type have similar electrical performance. The normalized RCS of antenna array is calculated and are validated against those available in open domain. The location and the levels of the RCS lobes as well as their dependence on (i) the number of antenna elements, (ii) the spacing between the elements, (iii) the electrical length between the couplers, (iv) the beam scanning and (v) the coupling coefficients of the couplers are analyzed.